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| 10/789,074 | 02/27/2004 | Dennis S. Greywall | 34 | 7287 |

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| EXAMINER | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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*Ex parte* DENNIS S. GREYWALL

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Appeal 2009-003328
Application 10/789,074
Technology Center 1700

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Decided:[1] July 07, 2009

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Before EDWARD C. KIMLIN, CHARLES F. WARREN, and CATHERINE Q. TIMM, *Administrative Patent Judges*.

KIMLIN, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1-22, 26-28, and 40-49. We have jurisdiction under 35 U.S.C. § 6(b).

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[1] The two-month time period for filing an appeal or commencing a civil action, as recited in 37 C.F.R. § 1.304, begins to run from the Decided Date shown on this page of the decision. The time period does not run from the Mail Date (paper delivery) or Notification Date (electronic delivery).

Claims 1 and 45 are illustrative:

1. A method for assembling carbon particles into at least one aligned carbon fiber, the method comprising the step of drawing glass containing said carbon particles so as to form at least one carbon fiber from said carbon particles.

45. The invention as defined in claim 1, further comprising the steps of:

dispersing said carbon particles within a form of liquid glass to form a sol-gel solution; and

solidifying the sol-gel solution to form a glass body containing therein said carbon particles,

wherein the step of drawing comprises:

drawing said glass body into the at least one carbon fiber.

The Examiner relies upon the following references in the rejection of the appealed claims (Ans. 3):

| | | |
|---|---|---|
| Chadross | 5,240,488 | Aug. 31, 1993 |
| Roeder | DE 3,516,920 | Nov. 07, 1985 |

J. W. S. Hearle et al., *Structural Mechanics of Fibers, Yarns, and Fabrics Vol. 1* (Wiley-Interscience, 1969) (hereafter "Hearle").

Satish Kumar et al., *Synthesis, Structure, and Properties of PBO/SWNT Composites, in* 35 Macromolecules 9039-9043 (2002) (hereafter "Kumar").

Mei Zhang et al., *Multifunctional Carbon Nanotube Yarns by Downsizing an Ancient Technology, in* 306(5700) Science Magazine 1358-1361 (2004) (hereafter "Zhang").

Appellant's claimed invention is directed to a method for assembling carbon particles into an aligned carbon fiber. The method entails drawing

glass that contains carbon particles. The glass body that is drawn is formed by solidifying a sol-gel solution formed by dispersing the carbon particles within a form of liquid glass.

Appealed claims 1, 3, 6, 8, 9, 10, 19, 20, 21, 26, 28, 40, 42, 45 and 47 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Roeder. Claims 12-18, 43, 46, and 48 stand rejected under 35 U.S.C. § 102(b) as anticipated by Roeder or, in the alternative, unpatentable over 35 U.S.C. § 103(a) over Roeder. Also, the claims stand rejected under 35 U.S.C. § 103(a) as follows:

(a) claims 4, 5, 7, 44, and 49 over Roeder in view of Hearle,

(b) claim 22 over Roeder alone,

(c) claims 11 and 13 over Roeder in view of Chandross, and

(d) claims 2, 27, and 41 over Roeder in view of Kumar.

We have thoroughly reviewed the respective positions advanced by Appellant and the Examiner. In so doing, we find ourselves in agreement with Appellant that the Examiner's rejections are not well founded. Accordingly, we will not sustain the Examiner's rejections.

The fundamental flaw in all the rejections before us is the Examiner's factual determination that Roeder discloses forming aligned carbon fiber from carbon particles. As emphasized by Appellant, Roeder discloses delivering fibers in the form of continuous-fiber strands which comprise 500 individual fibers and, after removing sizing material, the individual filaments are separated from one another. The filaments are cut to a suitable length and then combined into a fiber bundle which comprises a large number of fiber strands or filaments. The fiber bundle comprises, for example, 15,000 individual fibers. The fiber bundle is then immersed in a boiling suspension

of glass powder and, after removing the solvent, a fiber bundle impregnated with glass powder is produced. It is this impregnated fiber bundle that is pulled into a hollow mandrel in which the fiber bundle is pulled or drawn.

Consequently, based on the Roeder disclosure, we concur with Appellant that the fiber bundle of Roeder does not qualify as comprising the presently claimed carbon particles. By any definition, including the one agreed upon by Appellant and the Examiner, i.e., "a minute quantity or fragment" (Br. 7) of something, a fiber bundle comprising thousands of elongated filaments does not constitute a particle. Also, the Examiner has not established that the individual filaments or fibers of Roeder that are cut into a suitable length for forming a bundle would be reasonably considered by one of ordinary skill in the art as carbon particles.

We also agree with Appellant that Roeder does not describe within the meaning of § 102 the claim 45 requirement for dispersing carbon particles within liquid glass to form a sol-gel solution. Roeder discloses immersion of a fiber bundle into boiling alcohol in which glass powder, not carbon particles, is suspended. While the Examiner "strongly disagrees" with Appellant's argument because Roeder teaches that the fiber bundle can be impregnated either by a suspension process or by a sol-gel method, the Examiner has not explained how the fiber bundle is dispersed rather than immersed in the solvent (*see* Ans. 18, second para.). The Examiner's drawing of equivalency between "immersed or 'dispersed'" is without merit (*id.*).

In conclusion, based on the foregoing, we are constrained to reverse the Examiner's rejections.

REVERSED

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